

Guidance Navigation and Control Systems Engineer

Job Req ID: 12137

Closing Date: 13 April 2021

Publication: Internal & External

Vacancy Type: Permanent

Date Posted: 16 March 2021

Vacancy in the Directorate of Technology, Engineering and Quality.

ESA is an equal opportunity employer, committed to achieving diversity within the workforce and creating an inclusive working environment. For this purpose, we welcome applications from all qualified candidates irrespective of gender, sexual orientation, ethnicity, beliefs, age, disability or other characteristics. Applications from women are encouraged.

This post is classified A2-A4 on the Coordinated Organisations' salary scale.

Location

ESTEC, Noordwijk, The Netherlands

Description

Guidance Navigation and Control System Engineer in the Guidance Navigation and Control Section, GNC, AOCS and Pointing Division, Systems Department, Directorate of Technology, Engineering and Quality.

The Guidance Navigation and Control (GNC) Section provides functional support to ESA projects in the technical field of GNC systems for planetary exploration orbiters and landers, launch and transportation systems, re-entry vehicles, and new generation space vehicles for in-orbit robotic operations (including in-orbit servicing, in-orbit assembly, debris removal) and for specialized applications such as rendezvous and formation flying.

The Guidance Navigation and Control Section carries out technological research in the fields of GNC systems for space vehicles including interplanetary cruise, aero assistance, precision landing, ascent, rendezvous and docking, re-entry, formation flying and drag-free systems. This covers with special emphasis the following areas: autonomous and fault-tolerant systems (including Health Monitoring Systems), advanced guidance, control, estimation and optimization techniques and tools, as well as technology development of GNC sensors with emphasis on vision-based navigation and hybrid navigation concepts.

Duties

Reporting to the Head of Section and within the technical fields described above, the main tasks and responsibilities of the post holder will include:

- providing expert technical support and consultancy to ESA projects, programmes and general studies in the field of GNC requirements analysis and trade-offs (for system, software and hardware units), GNC performance analyses and budgeting, GNC system, software and unit procurement, GNC systems verification & validation throughout all project phases, including GNC Fault Detection Isolation and Recovery (FDIR);
- participating in feasibility studies (including Phase 0 in the ESA Concurrent Design Facility), project reviews and evaluation of procurement proposals;

- identifying critical development problems and assisting in their resolution;
- contributing to the definition of technology development requirements and work plans for the Agency's technology programmes;
- defining, initiating and managing R&D activities covering both long- and short-term needs and addressing mission enabling GNC system concepts as well as mathematical modelling, multi-physics simulation of complex spacecraft dynamics, advanced guidance, control, estimation and optimization techniques and tools;
- fostering new application areas for multidisciplinary activities, placing emphasis on innovative concepts, cutting-edge technologies and system architectures;
- laboratory activities for the evaluation and prototyping of new GNC systems and sensors as required;
- monitoring applicable scientific and technological trends and maintaining a state-of-the-art expertise;
- contributing to the dissemination of the results of the activities performed and the transfer of knowledge across the Agency.

Duties may also include supporting other activities within the post holder's field of competence.

Technical competencies

General background and specific experience in the technical domains covered by the position

Understanding of related technologies, R&D trends and the industrial landscape

Project support experience in a relevant domain

Experience with laboratory and field testing of relevant technical equipment

Experience in the preparation of procurement activities for technology development and innovation (statements of work, proposal evaluation, etc)

Experience in the management and monitoring of industrial activities, including participation in reviews

Behavioural competencies

Result Orientation

Operational Efficiency

Fostering Cooperation

Relationship Management

Continuous Improvement

Forward Thinking

Education

A Master's degree in Control or Aerospace Engineering is required.

Additional requirements

Proven experience in the development of GNC systems for Space Transportation and/or Rendezvous Systems.

Preference will be given to those with strong expertise in two or more of the following areas related to the position:

- Dynamics and guidance of space transportation systems (atmospheric and/or orbital flight) and/or rendezvous systems,
- Methods and principles for local and global optimization of space trajectories,
- Relative navigation technology (sensors and techniques, including data fusion) for space systems,
- Mathematical modelling and multi-physics / multi-domain simulation techniques,
- Classical as well as advanced (robust, adaptive, non-linear) control and filtering techniques,
- Control-structure interaction mitigation systems for orbital and/or space transportation vehicles.

Other information

For behavioural competencies expected from ESA staff in general, please refer to the [ESA Competency Framework](#).

The working languages of the Agency are English and French. A good knowledge of one of these is required. Knowledge of another Member State language would be an asset. The Agency may require applicants to undergo selection tests.

At the Agency we value diversity and we welcome people with disabilities. Whenever possible, we seek to accommodate individuals with disabilities by providing the necessary support at the workplace. The Human Resources Department can also provide assistance during the recruitment process. If you would like to discuss this further please contact us at contact.human.resources@esa.int.

Please note that applications are only considered from nationals of one of the following States: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, the United Kingdom and Canada, Latvia and Slovenia.

According to the ESA Convention the recruitment of staff must take into account an adequate distribution of posts among nationals of the ESA Member States. When short-listing for an interview, priority will first be given to internal candidates and secondly to external candidates from under-represented Member States. (<https://esamultimedia.esa.int/docs/careers/NationalityTargets.pdf>)

In accordance with the European Space Agency's security procedures and as part of the selection process, successful candidates will be required to undergo basic screening before appointment.

Recruitment will normally be at the first grade in the band (A2); however, if the candidate selected has little or no experience, the position may be filled at A1 level.